

REMARKS

Claims 1-10 and 12-42 are pending in the present application. Claims 1, 12-14, 18, 34-35, 38 and 42 have been amended. No new matter has been added.

The Rejections Under 35 U.S.C. § 112:

Claims 1-42 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the reasons stated on page 2 of the September 9, 2002 Office Action (“Office Action”). Applicants traverse,

Claims 1, 12-14, 18, 34-35, 38 and 42 and thereby the claims that depend from them have been amended to overcome the Examiner’s rejections under 35 U.S.C. § 112, second paragraph. Applicant respectfully requests the Examiner remove withdrawal these rejections.

The Rejections Under 35 U.S.C. § 102:

Claims 1-10, 14-22, 24-25 and 27-32 are rejected under 35 U.S.C. § 102(b) as being anticipated by European Patent 259,623 (“Bueschl”) for the reasons stated on page 3 of the Office Action.

Claims 34-41 are rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent 6,255,402 (“Boutillier”) for the reasons set forth on page 4 of the Office Action.

Claims 1-9, 18-22, 24-25 and 27-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by DD 294,493 (“DD”) for the reasons set forth on page 5 of the Office Action.

Claims 34-41 are rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent 6,262,179 (“Nicol”) for the reasons set forth on pages 5 and 6 of the Office Action.

Applicants traverse.

Amended claims 1 and 34 and thereby the remaining rejected claims, which depend from either claim 1 or 34 state that a cross-section of the vinylaromatic polymer matrix surrounding rubber nodules comprise 20 to 60% particles having a diameter from 0.1 to 1.0 μm , 5 to 20% particles having a diameter from 1 to 1.6 μm and 20 to 75% particles having a diameter greater than 1.6 μm .

None of Bueschl, Boutillier, DD or Nicol teach the vinylaromatic polymer matrix surrounding rubber nodules of the amended claims. Applicant respectfully requests the Examiner withdrawal these rejections.

The Rejections Under 35 U.S.C. § 103:

Claims 1-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nicol in view of German Patent 19637368 ("Klatt"). Applicants traverse.

Amended claims 1 and 34 and thereby the remaining rejected claims, which depend from either claim 1 or 34 state that a cross-section of the vinylaromatic polymer matrix surrounding rubber nodules comprise 20 to 60% particles having a diameter from 0.1 to 1.0 μm , 5 to 20% particles having a diameter from 1 to 1.6 μm and 20 to 75% particles having a diameter greater than 1.6 μm .

As stated above Nicol does not teach the vinylaromatic polymer matrix surrounding rubber nodules of the amended claims. Further, Klatt does not teach or suggest that vinylaromatic matrix surrounding rubber nodules comprising applicant's specific particle size distribution. One of skill in the art would not have been led to combine Nicol and Klatt absent applicant's disclosure. Applicant respectfully requests the Examiner withdrawal these rejections.

In light of the above amendments and remarks, the Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

Respectfully submitted,

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Appendix A
Changes to the Claims

The rewritten claims were revised as follows:

1. (Twice amended) Process for preparing a composition of a vinylaromatic polymer matrix surrounding rubber nodules, comprising the step of polymerizing at least one vinylaromatic monomer in the presence of a rubber, a stable free radical which is not introduced into the polymerization mixture in a form linked to a rubber, and a polymerization initiator with a grafting character suitable for said composition wherein said polymerization involves at least one phase inversion,

is such that in a cross-section of the polymer matrix surrounded rubber nodules at least 90% of the total area occupied by the nodules corresponds to capsules having a diameter ranging from 0.1 to 1.0 μm , or else

is such that it comprises multi-occlusion nodules and is such that in one of its sections

20 to 60% of the total area occupied by the particles corresponds to particles having a diameter ranging from 0.1 to 1 μm ,

5 to 20% of the total area occupied by the particles corresponds to particles having a diameter ranging from 1 to 1.6 μm , and

20 to 75% of the total area occupied by the particles corresponds to particles having a diameter of greater than 1.6 μm ,

 said step being such that:

 -if (SFR) represents the number of moles of stable free radical in the polymerization mixture,

 -if F_{SFR} represents the functionality of the stable free radical, i.e. the number of sites on the same molecule of stable free radical having the stable free radical state,

 -if (INIT) represents the number of moles of polymerization initiator in the polymerization mixture before phase inversion, and

 -if F_{INIT} represents the functionality of the initiator introduced before phase inversion, i.e. the number of sites having the free radical state that each molecule of initiator is capable of generating, then:

$$0.05 < \frac{F_{\text{SFR}} \times (\text{SFR})}{F_{\text{INIT}} \times (\text{INIT})} < 1.$$

12. (Twice Amended) Process according to claim [11] 1, characterized in that:

 -in the 0.1 to 1 μm size range, more than 95% of the particles have the salami or capsule morphology,

-in the 1 to 1.6 μm size range, more than 95% of the particles have the onion or salami morphology, and

-in the greater than 1.6 μm size range, more than 95% of the particles have the salami morphology.

13. (Twice Amended) Process according to claim [11] 1, characterized in that:

-in the 0.1 to 1 μm size range, more than 95% of the particles have the capsule or onion or labyrinth morphology,

-in the 1 to 1.6 μm size range, more than 95% of the particles have the onion or labyrinth morphology, and

-in the greater than 1.6 μm size range, more than 95% of the particles have the labyrinth morphology.

14. (Twice Amended) Process according to claim 1, characterized in that the distribution of the [equivalent] diameters of nodules is bimodal.

18. (Twice Amended) Process according to claim 1, characterized in that the composition is such that, in one of its cross-sections, at least 90% of the total area occupied by the particles corresponds to capsules having [an equivalent] a diameter.

34. (Twice Amended) A composition capable of being obtained by the process of one of claims 1-10 or 12-33 [comprising a vinylaromatic polymer matrix surrounding rubber nodules, -which is such that, in one of its sections, at least 90% of the total area is occupied by the nodules corresponds to capsules having an equivalent diameter ranging from 0.1 to 1 μm , or alternatively -which comprises multi-occlusion-type nodules and is such that in one of its sections

-20 to 60% of the total area occupied by the particles corresponds to particles having an equivalent diameter ranging from 0.1 to 1 μm ,

5 to 20% of the total area occupied by the particles corresponds to particles having an equivalent diameter ranging from 1 to 1.6 μm , and

20 to 75% of the total area occupied by the particles corresponds to particles having an equivalent diameter of greater than 1.6 μm].

35 (Twice Amended) Composition according to claim 34 comprising a stable free radical which is in a free form or in a form linked to a polymer chain by a covalent bond, comprising a matrix of vinylaromatic polymer surrounding rubber nodules, characterized in that the composition comprises multi-occlusion nodules [of the multi-occlusion-type] and is such that, in one of its cross-sections,

-20 to 60% of the total area occupied by the particles corresponds to particles having [an equivalent] a diameter ranging from 0.1 to 1 μm ,

5 to 20% of the total area occupied by the particles corresponds to particles having [an equivalent] a diameter ranging from 1 to 1.6 μm , and

20 to 75% of the total area occupied by the particles corresponds to particles having [an equivalent] a diameter of greater than 1.6 μm .

38. (Twice Amended) Composition according to one of Claims 34-37, characterized in that the distribution of the [equivalent] diameters of nodules is bimodal.

42. (Twice Amended) Composition according to Claim 34, characterized in that the composition is such that, in one of its cross-sections, at least 90% of the total area occupied by the particles corresponds to capsules having [an equivalent] a diameter ranging from 0.1 to 1 μm .